UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,414	12/04/2003	Philip J. Ellerbrock	038190/270524	7718

826 7590 07/29/2005

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
DANG, KHANH	

ART UNIT	PAPER NUMBER
2111	

DATE MAILED: 07/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,414	ELLERBROCK ET AL.	
	Examiner	Art Unit	
	Khanh Dang	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 12, and 18, the phrase "independent of use of processor" is unclear. The "bus controller" comprises a processor, and the network interface is operationally dependent from the processor of bus controller. If the phrase "independent of use of a processor" is supposed to mean that there is no processor inside the network interface, then such a phrase is, at best, unclear in light of 35 USC 112, 2ND paragraph.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15, 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Karolys et al. (Karolys, 6,013,108).

As broadly drafted, these claims do not define any structure that differs from Karolys et al.

With regard to claim 1, Karolys discloses a serial, multiplexed communications system (shown generally at Fig. 2, note that in Karolys, [e]ach sensor transfers analog or digital sensed data one at a time under control of the bus converter device through the common bus." Thus, it is clearly a serial, multiplexed communication. Note also that Fig. 1 clearly shows the need for a multiplex when there is multiple communications from a plurality of sensors) comprising: a bus controller (BCM 28 connected to a Host 14) for issuing a plurality of commands; a plurality of data channels (constituted by a plurality of sensors or actuators, see at least column 1, line 50-61; column 3, lines 51-60; column 5, lines 22-30) for performing predefined functions in response to the commands; a common digital bus (24) interconnecting said bus controller (BCM) and said plurality of data channels (constituted by a plurality of sensors or actuators, see at least column 1, line 50-61; column 3, lines 51-60; column 5, lines 22-30) for supporting communication therebetween; and a plurality of network device interfaces (TBIM 26), one of which is associated with each data channel for interconnecting said respective data channel with said common digital bus (24) and communicating information from said bus controller (BCM 28 connected to a Host 14) to said data channel, wherein at least one of said network device interfaces (TBIM 26) comprises a state machine and is independent of a processor (it is clear from at least Fig. 3 and description thereof, the TBIM 26 comprises the so-called "state machine" and is independent of a processor).

With regard to claim 2, it is clear from at least Fig. 4 and description thereof, the bus controller (28 connected to host 14) generates a synchronous clock signal (using 206, for example) which is provided to said network device interface (TBIM 26) such that said network device interface operates independent of a clock (it is clear that TBIM does not include any clock or is independent of a clock).

With regard to claim 3, it is clear from above that the plurality of data channels are selected from the group consisting of sensors and actuators.

With regard to claim 4, it is clearly inherent that the network device interface (TBIM 26) must have a receiver for receiving messages from said bus controller (28 connected to host 14) via said common digital bus (24). See additionally "TX" and Rx" in Fig. 4. Note also that the term "receive" is used extensively throughout Karolys to describe how message is communicated between devices.

With regard to claim 5, it is clearly inherent that the network device interface (TBIM 26) must have a device interface so that it can provide commands to a data channel (constituted by a plurality of sensors) connected thereto and receive data from the associated data channel.

With regard to claim 6, it is clearly inherent that the network device interface (TBIM 28) must have a transmitter for transmitting messages to said bus controller (28 connected to host 14) via said common digital bus (24). See additionally "TX" and Rx" in Fig. 4. Note also that the term "transmit" is used extensively throughout Karolys to describe how message is communicated between devices.

With regard to claim 7, it is clear from at least Fig. 3 and description thereof, the network device interface (TBIM 26) communicates with both said bus controller and a data channel connected to said network device interface independent of a processor.

With regard to claim 8, it is well-known that ASIC comprises an integrated circuit (IC) with functionality customized for a particular use (equipment or project), rather than serving for general-purpose use. For example, a chip designed solely to run a cash register is an ASIC. In contrast, a mocroprocessor is not application-specific, because users can adapt it to many purposes. In the instant acse, it is clear that the IC of network device interface of Karolys is customized for a particular use (for interfacing with sensing/actuating devices), and thus it is clearly an ASIC. Note that in Karolys, the bus controller connected to the network interface device is an ASIC.

With regard to claim 9, it is clear from discussion above that the network device interface (TBIM) receives commands from said bus controller (28 connected to host 14) and controls the data channel connected to said network device interface based on the command.

With regard to claim 10, it is clear from discussion above that the network device interface (TBIM 26) receives data from said bus controller (28 connected to host 14) and provides the data to the data channel connected to said network device interface.

With regard to claim 11, it is clear from discussion that the network device interface (TBIM 26) receives data from the data channel connected to said network device interface, and wherein said network device interface sends the data to said bus controller (28 connected to host 14).

With regard to claims 12-14, see discussion above.

With regard to claim 15, see discussion above. Note also that in Karolys, there is only one synchronized clock for providing clock rate for messages of 8 bits and 11 bits.

With regard to broadly drafted claim 17, it is clear that in Karolys receiver receives messages comprised of a plurality of bits (8 bits or 11 bits), wherein said receiver further receives a synchronous clock signal (provided by the real time clock) comprised of a plurality of clock pulses (it is clear that clock signal is represented by pulses), and wherein said device interface provides commands to the associated data channel at a predetermined time (schedule time in Karolys) as defined by a respective clock pulse (it is clear that in digital communication, "time" is represented by pulses) which, in turn, is defined based upon a predetermined relationship to a respective bit of the message (whether 8 bit or 11 bit message and the number of pulses varies depending on the number of bits).

With regard to claims 18-20, see discussion above.

Claim Rejections - 35 USC § 103

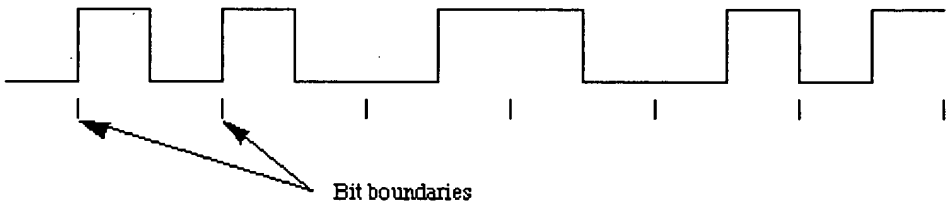
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys.

Karolys, as discussed above, discloses the claimed invention including serially transmitting and receiving messages. Karolys does not disclose that such messages comprise of a plurality of bits (8 bits or 11 bits) having a value defined by a transition between first and second states, and wherein said device interface provides commands to the associated data channel at a predetermined time relative to the transition that defines the value of a respective bit of the message. However, such encoding technique is old and well-known in the art as Manchester encoding. Manchester encoding, long been considered as an alternative to NZR encoding, is a binary signaling mechanism that combines data and clock into "bit-symbols." Each bit-symbol is split into two halves with the second half containing the binary inverse of the first half; a transition always occurs in the middle of each bit-symbol.

The following diagram shows a typical Manchester encoded signal with the corresponding binary representation of the data (1,1,0,1,0,0) being sent.



The waveform for a Manchester encoded bit stream carrying the sequence of bits 110100.

In the Manchester encoding shown, a logic 0 is indicated by a 0 to 1 transition at the center of the bit and a logic 1 is indicated by a 1 to 0 transition at the center of the bit. Note that signal transitions do not always occur at the 'bit boundaries' (the division

between one bit and another), but that there is always a transition at the center of each bit. A Manchester encoded signal contains frequent level transitions which allow the receiver to extract the clock signal and determine the timing. See also "Manchester Encoding," cited below as evidence of well-known prior art. Further evidence can be found in Hanna et al., Fig. 2, and description thereof, column 1, lines 22-23; column 1 line 35 to column 2, line 13.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Manchester encoding instead of NZR encoding in the communication system of Karolys, since the Examiner takes Official Notice that Manchester encoding, as explained above, is old and well-known in the art (as an alternative to NZR encoding); and using Manchester encoding instead of NZR encoding in Karolys only involves ordinary skill in the art for the purpose of providing a "number of advantages" over the NZR encoding (see "Manchester Encoding," cited below).

Response to Arguments

Applicants' arguments filed 6/10/2005 have been fully considered but they are not persuasive.

At the outset, Applicants are reminded that claims subject to examination will be given their broadest reasonable interpretation consistent with the specification. *In re Morris, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997)*. In fact, the "examiner has the duty of police claim language by giving it the broadest reasonable interpretation." *Springs Window Fashions LP v. Novo Industries, L.P.*, 65 USPQ2d 1862, 1830, (Fed. Cir.

2003). Applicants are also reminded that claimed subject matter not the specification, is the measure of the invention. Disclosure contained in the specification cannot be read into the claims for the purpose of avoiding the prior art. *In re Sporck*, 55 CCPA 743, 386 F.2d, 155 USPQ 687 (1986).

With this in mind, the discussion will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitations that are not in the claims or any arguments that are irrelevant and/or do not relate to any specific claim language will not be warranted.

The 112 Rejection:

See discussion above.

The 102 Rejection:

Applicants argue that "Karolys patent no where teaches or suggests that the interface module (TBIM) is a state machine or operates independent of a processor as is recited by the claimed invention."

In response to Applicants' argument, at the outset, it is noted that the originally filed specification, page 4, clearly states that "the NDI device of the present invention is a state machine implemented as an Application Specific Integrated Circuit (ASIC). An advantage of using a state machine to implement the NDI device instead of a micro-controller or processor is that many processes can occur simultaneously, which aids the

NDI device to be time deterministic and fast." By definition, ASIC is a chip that is custom designed for a specific application rather than a general-purpose chip such as a microprocessor. It is clear from Karolys (see at least Fig. 3 and description thereof) that the TMIM (or NDI device as claimed) does not comprise any microprocessor. Further, the TBIM (or NDI device as claimed) is a chip that is custom designed for temperature measurement/sensor identification. Still further, the TBIM (or NDI device as claimed) is a plug and play device and is controlled, not by any microprocessor inside the TBIM, but via commands received from the BCM 28 (see description of Fig. 3).

Applicants further argue that "the interface module (TBIM) of the '108 Karolys patent is not a state machine operating independent of a processor is that the interface module is capable of performing a self test. This self test is likely program code ran by a processor of the interface module (TBIM). See '108 Karolys patent, Abstract. Further, the '108 Karolys patent discloses that the interface module (TBIM) has a query/programming/execute mode." See '108 Karolys patent, col. 4, lines 39-40. Applicants respectfully submit that "operation of program" must refer to program code used by the interface module (TBIM) to operate. In order to operate using program code, the interface module (TBIM) must have a higher level processor to function. As such, the interface module (TBIM) of the '108 Karolys patent is not a state machine, but instead is a processor or micro-processor. Contrary to Applicants' argument, Karolys does NOT disclose that the self test is a "program code ran by a processor of the interface module (TBIM)" as alleged by Applicants. Further, Karolys does NOT disclose that the programming mode involves program code and "[i]n order to operate using

program code, the interface module (TBIM) must have a higher level processor to function" as alleged by Applicants. There is no evidence in the disclosure of Karolys to indicate that the TBIM comprises a microprocessor. In any event, it is not necessary to employ a microprocessor to run self-test and self-calibration. Control Logic, for example, can also be used to do self-test and self-calibration.

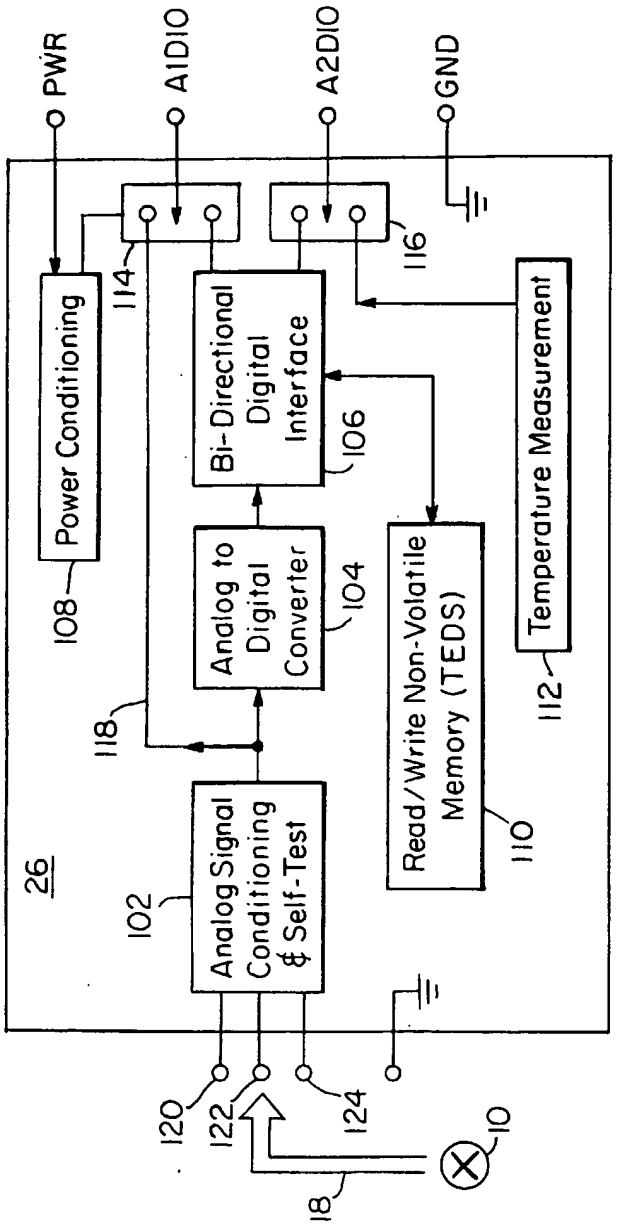

PWR
A1DIO
A2DIO
GND
Power Conditioning
Bi-Directional Digital Interface
Analog to Digital Converter
Analog Signal Conditioning & Self-Test
Read/Write Non-Volatile Memory (TEDS)
Temperature Measurement
26
102
104
106
108
110
112
114
116
118
120
122
124
10
18
PWR: Power
A1DIO: Analog 1/Digital Input/Output+
A2DIO: Analog 2/Digital Input/Output-
GND: Ground

FIG. 3

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 703-308-0211.

Khanh Dang
Primary Examiner